



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,700	03/28/2005	Takuya Domoto	1141/72613	2449
23432	7590	02/23/2006	EXAMINER	
COOPER & DUNHAM, LLP 1185 AVENUE OF THE AMERICAS NEW YORK, NY 10036			SANEI, MONA M	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

all

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/500,700	DOMOTO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Mona M. Sanei	2882	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07022004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Information Disclosure Statement***

The information disclosure statement filed 3/28/2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

***Specification***

The disclosure is objected to because of the following informalities:

- Pg. 4, line 18, replace "time is as" with - -time to be as- -.
- Pg. 6, line 26, delete "is required".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Vogler (4,259,580).

Vogler discloses a device comprising an anode rotation number detecting means (Col. 9, lines 3-4) for detecting the rotation number of the anode on the basis of information of voltage and current (Col. 8, lines 7-29).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 2, 3, 6, 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler as applied to Claims 1 and 11 above, and further in view of Chalupa et al. (6,366,865) and Bonduel et al. (2002/0008537).

Regarding Claims 2 and 12, Vogler discloses all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising at least one current detecting means (current sensing means, Col. 8, lines 10-11) for detecting current flowing through the stator coil (stator winding, Col. 4, lines 27-28) and at least one voltage detecting means (deriving voltage, Col. 8, lines 27-30) for detecting voltage of the stator coil (stator winding, Col. 4, lines 27-28).

However, Vogler fails to disclose a device including an impedance calculating means for calculating impedance of the anode rotation mechanism using an output of the voltage detecting means and the current detecting means, a predetermined impedance storing means for storing an impedance of the anode rotation mechanism corresponding to a predetermined rotation number of the anode, and a means for comparing the predetermined impedance with a present impedance calculated by the impedance calculating means and detecting that the present impedance is around the predetermined impedance.

Chalupa et al. also discloses a device including at least one voltage detecting means [(Col. 2, line 57; Fig. 2, #41) and (Col. 6, lines 59-61)] for detecting voltage of the stator coil [(Col. 2, line 13; Fig. 1, #11) and (Col. 6, line 60)] and at least one current detecting means [(Col. 2, lines 57-58; Fig. 2, #42) and (Col. 6, line 60)] for detecting current flowing through the stator coil [(Col. 2, line 13; Fig. 1,

Art Unit: 2882

#11) and (Col. 6, line 60)]. Chalupa discloses a device including an impedance calculating means (resistance estimation method, Col. 1, lines 51-52; where: impedance is directly proportional to resistance  $Z=V/I$ ,  $R=V/I \therefore Z=R$ ) for calculating impedance (Col. 3, line 10; "R") of the rotation mechanism using an output of the voltage detecting means and the current detecting means (Col. 6, line 57 to Col. 7, line 10), predetermined impedance [("preliminary" resistance, Col. 3, lines 13-14; "R") and (Col. 5, lines 60-63)] storing means (Col. 8, line 26) for storing an impedance of the anode rotation mechanism, and means for comparing the predetermined impedance with a present impedance calculated by the impedance calculating means and detecting that the present impedance is around the predetermined impedance (Col. 5, lines 28-53; Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Vogler by incorporating the features disclosed by Chalupa et al.

One would have been motivated to make this modification in order to have more information for better motor control (Col. 1, lines 6-30) as implied from Chalupa et al.

Bonduel et al. (2002/0008537) discloses the following equation:

$$\Omega_n = \frac{(U_n - RI_n)}{Ke}$$

Where  $\Omega_n$  is the angular speed and R is the resistance of the motor ([0014]). From this equation, it is apparent that the rotation number can be derived from the resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the concept of calculating the rotation number using the resistance as disclosed by Bonduel et al. to the device disclosed by Vogler.

One would have been motivated to make this modification for better monitoring and control ([0001]) as implied by Bonduel et al.

Regarding Claims 3 and 13, Vogler as modified above discloses all the characteristic features of the present invention as recited above. Chalupa et al. further discloses a device including an initial

Art Unit: 2882

impedance [(“preliminary” resistance, Col. 3, lines 13-14; “R”) and (Col. 5, lines 60-63)] storing means (Col. 8, line 26) for storing an impedance at the start of rotation calculated by the impedance calculating means. Bondouel et al. necessarily discloses means for detecting an event that the rotation number of the anode of Vogler is a predetermined rotation number on the basis of the impedance calculated by the impedance calculating means (using the equation disclosed by Bondouel et al. mentioned above).

However, Chalupa et al. fails to disclose an impedance ratio calculating means for calculating a ratio between the initial impedance and a present impedance calculated by the impedance calculating means.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an impedance ratio calculating means since the concept of comparing the rotation number to the present impedance is equivalent to the concept of comparing the rotation number to the ratio of the present and initial impedance. Therefore, one of ordinary skill in the art would have found it obvious to substitute the concept for comparing the rotation number to the rotation of the present and initial impedance for the concept of comparing the rotation number to the present impedance.

One would have been motivated to make this modification in order to provide a more standardized means of comparing the values.

Regarding Claims 6 and 16, Chalupa et al. discloses a system wherein among voltage and current information related to the stator coil and input into the impedance calculating means, the voltage information is a target value of the voltage (Col. 6, line 57 to Col. 7, line 9).

2. Claims 4, 5, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler as applied to Claims 1 and 11 above, and further in view of Kikkawa (4,701,683).

Regarding Claims 4 and 14, Vogler as modified above suggests all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising at least one

Art Unit: 2882

current detecting means for detecting current flowing through the stator coil (current sensing means, Col. 8, lines 10-11).

However, Vogler fails to disclose a device including a preset stator coil current storing means for storing a stator coil current corresponding to a preset rotation number, and means for detecting an event that a present stator coil current is around the predetermined stator coil current by comparing the stored stator coil current and the stator coil current obtained by the current detecting means.

Kikkawa discloses at least one current detecting means (current detector portion, Col. 8, line 7; Fig. 5, #60) for detecting current flowing through a stator coil (Col. 8, line 9; Fig. 5, #14), preset stator coil current storing means (predetermined value, Col. 8, line 12) for storing a stator coil current necessarily corresponding to a preset rotation number, and means for detecting an event that a present stator coil current is around the predetermined stator coil current by comparing the stored stator coil current and the stator coil current obtained by the current detecting means (current controller portion, Col. 8, lines 3-12; Fig. 5, #70).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device suggested by Vogler as modified above by incorporating the features disclosed by Kikkawa.

One would have been motivated to make this modification in order to better protect the circuit (Col. 1, lines 3-18) as implied by Kikkawa.

Regarding Claims 5 and 15, Vogler as modified above suggests all the characteristic features of the present invention as recited above. Kikkawa further discloses a device including an initial stator coil current (predetermined value, Col. 8, line 12) storing means for storing the stator coil current at the start of rotation detected by the current detecting means. Bonduel et al. necessarily discloses means for detecting an event that the rotation number of the anode of Vogler is a predetermined rotation number using the stator coil current obtained by the stator coil current calculating means (using the equation disclosed by Bonduel et al. as mentioned above).

However, Kikkawa fails to disclose a stator coil current ratio calculating means for calculating a ratio between the initial stator coil current and the present stator coil current detected by the current detecting means.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an impedance ratio calculating means since the concept of comparing the rotation number to the present stator coil current is equivalent to the concept of comparing the rotation number to the ratio of the present and initial stator coil current. Therefore, one of ordinary skill in the art would have found it obvious to substitute the concept for comparing the rotation number to the rotation of the present and initial stator coil current for the concept of comparing the rotation number to the present stator coil current.

One would have been motivated to make this modification in order to provide a more standardized means of comparing the values.

3. Claims 7-10 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogler, Chalupa et al., and Bonduel et al. applied to Claims 1, 6, 11, and 16, and further in view of Kuzniar (6,341,155).

Vogler as modified above suggests all the characteristic features of the present invention as recited above. Vogler further discloses a device comprising an X-ray radiation start commanding means for receiving output voltage of the X-ray high voltage generating device between the anode and the cathode of the X-ray tube device when the rotation number of the anode reaches a predetermined number and outputting a command to generate X-ray from the X-ray tube device (see abstract).

However, Vogler fails to disclose a device comprising an anode rotation mechanism and an x-ray high voltage generating device for generating a DC high voltage to be applied between an anode and a cathode of the x-ray tube device.



Art Unit: 2882

Kuzniar et al. discloses a system having an anode rotation mechanism (induction motor, Col. 4, line 16; Fig. 1, #40) and an X-ray high voltage generating device for generating a DC high voltage to be applied between an anode and a cathode of the X-ray tube device (Col. 4, lines 45-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device suggested by Vogler as modified above by incorporating the feature disclosed by Kuzniar et al.

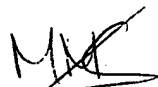
One would have been motivated to make this modification in order to provide better stability (Col. 4, lines 45-63) as implied from Kuzniar et al.

### **Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mona M. Sanei whose telephone number is (571) 272-8657. The examiner can normally be reached on Monday through Friday, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
mms



  
EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER